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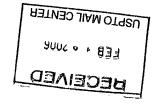RECEIVED
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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,567	06/30/2003	Hirotaka Ohashi	116225	7297

			EXAMINER
25944	7590	02/10/2006	DEBROW, JAMES J

OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

ART UNIT	PAPER NUMBER
2176	

DATE MAILED: 02/10/2006

OIPE
FEB 13 2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/608,567	OHASHI ET AL.
	Examiner	Art Unit	
	James J. Debrow	2176	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2003*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2003* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *6/30/2003;8/9/2005*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

1.   This action is in responsive to communications: Application filled on 6/30/2003.

2.   Claims 1-28 are pending in this case. Claims 1 - 4, and 21 - 28, are independent

claims.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

4.   **Claims 1-28** rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

5.   The claims are generally narrative and indefinite, failing to conform with current

U.S. practice. They appear to be a literal translation into English from a foreign

document and are replete with grammatical and idiomatic errors.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7.   **Claims 1, and 21, are rejected under 35 U.S.C. 102(b) as being anticipated**

by McCaskey et al. (Pub. No.: US 2002/0152245 A1; Filing Date: Apr. 5, 2001).

        In regards to independent claims 1, and 21, McCaskey et al. discloses an

invention that relates to the electronic publication of news text and news images on the

World Wide Web. The invention is made up of a computer system including, but not

limited to, one or more subsystems, memory and storage devices, a set of interrelated

programs, an editorial database. The invention's computer system is connected to the

World Wide Web (0049, Fig 1). The primary input to the invention is a daily set of story

files produced in HTML dump format (0054, lines 1-2). These files are created in the

routine production of the daily printed newspaper, and originate on newspaper source

system. The computer-stored input images include news photos, advertising photos,

and related graphics *(plurality of pieces of published information)* (0050, lines 5-10).

Each story file contains the text of the story, and a series of identifiably-marked data

fields, called tags *(identification information)*, containing classification and other

descriptive information concerning that story. The invention's filter program uses

selected style tags to place the story correctly in the editorial database, and thus in the

new Web pages (0054, lines 4-7, line 11-13). McCaskey et al. also disclose a news

story may be a news story marked up for printing in the newspaper, or it may be a

caption marked up for printing a news picture. "Marked up" means that directions

concerning the story text formatting, story placement, and links to other stories and

information are embedded in the story text. These markup directions are also called

meta tags, or style tags *(arrangement control information)* (0056). McCaskey et al.

further disclose, stories from the newspaper are stored in the editorial database

(information storage region) in component form (0067, lines 5-6; Fig 3). The editorial

database incorporates tables, which reduce database access overhead. The meta-story

table contains style tags extracted from the stories in the story files (0071, lines 3-4, 403

Fig. 3).

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

9.   **Claims 2-20, and 22-28, are rejected under 35 U.S.C. 103(a) as being**

unpatentable over McCaskey et al. (Pub. No.: US 2002/0152245 A1; Filing Date:

Apr. 5, 2001), in view of Guttman et al. (Patent No.: 6,173,286 B1; Date of Patent:

Jan. 9, 2001).

        In regards to independent claims 2 – 4, McCaskey et al. discloses an

invention that relates to the electronic publication of news text and news images on the

World Wide Web. The invention is made up of a computer system including, but not

limited to, one or more subsystems, memory and storage devices, a set of interrelated

programs, an editorial database. The invention's computer system is connected to the

World Wide Web (0049, Fig 1). The primary input to the invention is a daily set of story

files produced in HTML dump format (0054, lines 1-2). These files are created in the

routine production of the daily printed newspaper, and originate on newspaper source

system. The computer-stored input images include news photos, advertising photos,

and related graphics *(plurality of pieces of published information)* (0050, lines 5-10).

Each story file contains the text of the story, and a series of identifiably-marked data

fields, called tags *(identification information)*, containing classification and other

descriptive information concerning that story. The invention's filter program uses

selected style tags to place the story correctly in the editorial database, and thus in the

new Web pages (0054, lines 4-7, line 11-13). McCaskey et al. also disclose a news

story may be a news story marked up for printing in the newspaper, or it may be a

caption marked up for printing a news picture. "Marked up" means that directions

concerning the story text formatting, story placement, and links to other stories and

information are embedded in the story text. These markup directions are also called

meta tags, or style tags *(arrangement control information)* (0056). McCaskey et al.

further disclose, stories from the newspaper are stored in the editorial database

(information storage region) in component form (0067, lines 5-6; Fig 3). The editorial

database incorporates tables, which reduce database access overhead. The meta-story

table contains style tags extracted from the stories in the story files (0071, lines 3-4, 403

Fig. 3).

McCaskey et al. does not discloses expressly, *storing the published information*

in storage region when there is not identical or related, storage region and published

information identification.

However, Guttman et al. discloses an invention that optimizes publication

layouts. Guttman et al. discloses a database contain object-oriented elements (column

5, lines 26; Fig 2). During placements of the objects with the layout, Guttman et al.

invention determines if the object meets the minimum space requirements. If the object

meets the minimum space requirements, the object is inserted in the space, otherwise

the process is aborted and the system performs the necessary cleanup function

(column 12, lines 56-59; 676 Fig 6D).

Therefore, at the time of the invention, it would have been obvious to combine

Guttman et al. with McCaskey et al., for the benefit of producing an optimized

publication layout, to obtain the invention as specified in the claim(s).

In regards to dependent claims 5-9, these claims contain substantially similar

subject matter as in claim 4, and therefore are rejected along the same rationale.

In regards to dependent claims 10-13, McCaskey et al. discloses the topic of

the story determines a story's placement on the web (0122, line 1). To determine the

Website topic of a story for the Website, the filter program uses the style tags for the

edition, story name, page assigned, basket, topic, keyword, and a story number

supplied to the input file. The filter program then test combinations *(similarity)* of these

style tags to establish a *value* for the topic as required by the Website (0122).

McCaskey et al. also disclose another embodiment of the invention's translation

process, where the story's topic and other similar data elements values are determined

by the application of a set of tabulated rules to test the style tag combination *(similarity)*

(0125).

In regards to dependent claim 14, McCaskey et al. does not discloses

expressly, *deleting relevant information storage region.*

However, Guttman et al. discloses an invention that optimizes publication

layouts. Guttman et al. discloses a database contain object-oriented elements (column

5, lines 26; Fig 2). During placements of the objects with the layout, Guttman et al.

invention determines if the object meets the minimum space requirements. If the object

meets the minimum space requirements, the object is inserted in the space, otherwise

the process is aborted and the system performs the necessary cleanup function (*delete*

relevant information storage region) (column 12, lines 56-59; 676 Fig 6D).

Therefore, at the time of the invention, it would have been obvious to combine

Guttman et al. with McCaskey et al., for the benefit of producing an optimized

publication layout, to obtain the invention as specified in the claim(s).

In regards to dependent claim 15, McCaskey et al. does not discloses

expressly, *storing margin-filling information in the relevant information storage region.*

However, Guttman et al. discloses an invention that optimizes publication

layouts. Guttman et al. discloses a database contain object-oriented elements (column

5, lines 26; Fig 2). During placements of the objects with the layout, Guttman et al.

invention determines if the object meets the minimum space requirements. If the object

meets the minimum space requirements, the object is inserted in the space, otherwise

the process is aborted and the system performs the necessary cleanup function *(storing*

margin-filling information in the relevant information storage region) (column 12, lines

56-59; 676 Fig 6D).

Therefore, at the time of the invention, it would have been obvious to combine

Guttman et al. with McCaskey et al., for the benefit of producing an optimized

publication layout, to obtain the invention as specified in the claim(s).

In regards to dependent claim 16, this claim contains substantially similar

subject matter as in claim 4, and therefore is rejected along the same rationale.

In regards to dependent claims 17, and 18, McCaskey et al. does not disclose

expressly, *level of priority.*

However, Guttman et al. discloses an invention that optimizes publication

layouts. Guttman et al. discloses a database contain object-oriented elements (column

5, lines 26; Fig 2). During placements of the objects with the layout, Guttman et al.

invention determines if the object meets the minimum space requirements. If the object

meets the minimum space requirements, the object is inserted in the space, otherwise

the process is aborted and the system performs the necessary cleanup function

(column 12, lines 56-59; 676 Fig 6D). Guttman et al. further discloses a block

representation of the computer generating the fitness of the different publication layouts

(similarity) (column 8, line 18-20; 306 Fig 3). The evaluation of the publication layout

represents an aggregation of the fitness values for each individual PlaceableItem object

in the list *(similarity value)* (column 8, lines 27-30). The computer selects a subset of the

ordered lists from the population based on the total fitness values *(priority)* (column 8,

line 52-54; 312 Fig 3).

Therefore, at the time of the invention, it would have been obvious to combine

Guttman et al. with McCaskey et al., for the benefit of producing an optimized

publication layout, to obtain the invention as specified in the claim(s).

In regards to dependent claims 19, and 20, McCaskey et al. does not disclose

expressly, storing user *information regarding a user.*

However, Guttman et al. discloses with regards to interfaces with external client

databases, the invention can accept various input data to support the publication layout

process. Using the broadest interpretation, determines that this includes user

information.

Therefore, at the time of the invention, it would have been obvious to combine

Guttman et al. with McCaskey et al., for the benefit of producing an optimized

publication layout, to obtain the invention as specified in the claim(s).

In regards to independent claims 22 - 25, McCaskey et al. discloses an

invention that relates to the electronic publication of news text and news images on the

World Wide Web. The invention is made up of a computer system including, but not

limited to, one or more subsystems, memory and storage devices, a set of interrelated

programs, an editorial database. The invention's computer system is connected to the

World Wide Web (0049, Fig 1). The primary input to the invention is a daily set of story

files produced in HTML dump format (0054, lines 1-2). These files are created in the

routine production of the daily printed newspaper, and originate on newspaper source

system. The computer-stored input images include news photos, advertising photos, and related graphics *(plurality of pieces of published information)* (0050, lines 5-10). Each story file contains the text of the story, and a series of identifiably-marked data fields, called tags *(identification information)*, containing classification and other descriptive information concerning that story. The invention's filter program uses selected style tags to place the story correctly in the editorial database, and thus in the new Web pages (0054, lines 4-7, line 11-13). McCaskey et al. also disclose a news story may be a news story marked up for printing in the newspaper, or it may be a caption marked up for printing a news picture. "Marked up" means that directions concerning the story text formatting, story placement, and links to other stories and information are embedded in the story text. These markup directions are also called meta tags, or style tags *(arrangement control information)* (0056). McCaskey et al. further disclose, stories from the newspaper are stored in the editorial database *(information storage region)* in component form (0067, lines 5-6; Fig 3). The editorial database incorporates tables, which reduce database access overhead. The meta-story table contains style tags extracted from the stories in the story files (0071, lines 3-4, 403 Fig. 3).

McCaskey et al. does not discloses expressly, *storing the published information in storage region when there is not identical or related, storage region and published information identification.*

However, Guttman et al. discloses an invention that optimizes publication layouts. Guttman et al. discloses a database contain object-oriented elements (column

5, lines 26; Fig 2). During placements of the objects with the layout, Guttman et al.

invention determines if the object meets the minimum space requirements. If the object

meets the minimum space requirements, the object is inserted in the space, otherwise

the process is aborted and the system performs the necessary cleanup function

(column 12, lines 56-59; 676 Fig 6D).

Therefore, at the time of the invention, it would have been obvious to combine

Guttman et al. with McCaskey et al., for the benefit of producing an optimized

publication layout, to obtain the invention as specified in the claim(s).

In regards to independent claims 27 - 28, McCaskey et al. discloses an

invention that relates to the electronic publication of news text and news images on the

World Wide Web. The invention is made up of a computer system including, but not

limited to, one or more subsystems, memory and storage devices, a set of interrelated

programs, an editorial database. The invention's computer system is connected to the

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files produced in HTML dump format (0054, lines 1-2). These files are created in the

routine production of the daily printed newspaper, and originate on newspaper source

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and related graphics *(plurality of pieces of published information)* (0050, lines 5-10).

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fields, called tags *(identification information)*, containing classification and other

descriptive information concerning that story. The invention's filter program uses

selected style tags to place the story correctly in the editorial database, and thus in the new Web pages (0054, lines 4-7, line 11-13). McCaskey et al. also disclose a news story may be a news story marked up for printing in the newspaper, or it may be a caption marked up for printing a news picture. "Marked up" means that directions concerning the story text formatting, story placement, and links to other stories and information are embedded in the story text. These markup directions are also called meta tags, or style tags *(arrangement control information)* (0056). McCaskey et al. further disclose, stories from the newspaper are stored in the editorial database *(information storage region)* in component form (0067, lines 5-6; Fig 3). The editorial database incorporates tables, which reduce database access overhead. The meta-story table contains style tags extracted from the stories in the story files (0071, lines 3-4, 403 Fig. 3).

McCaskey et al. does not discloses expressly, *storing the published information in storage region when there is not identical or related, storage region and published information identification.*

However, Guttman et al. discloses an invention that optimizes publication layouts. Guttman et al. discloses a database contain object-oriented elements (column 5, lines 26; Fig 2). During placements of the objects with the layout, Guttman et al. invention determines if the object meets the minimum space requirements. If the object meets the minimum space requirements, the object is inserted in the space, otherwise the process is aborted and the system performs the necessary cleanup function (column 12, lines 56-59; 676 Fig 6D).

Therefore, at the time of the invention, it would have been obvious to combine

Guttman et al. with McCaskey et al., for the benefit of producing an optimized

publication layout, to obtain the invention as specified in the claim(s).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to James J. Debrow whose telephone number is 571-272-

5768. The examiner can normally be reached on 8:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Heather Herndon can be reached on 571-272-4136. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

James Debrow
Examiner
Art Unit 2176

HEATHER R. HERNDON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Form PTO-1449 (REV. 8-83)	US Dept. of Commerce PATENT & TRADEMARK OFFICE	ATTY DOCKET NO. 116225	APPLICATION NO. New U.S. Application
INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		APPLICANT(S) Hirotaka OHASHI et al.	
		FILING DATE June 30, 2003	GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS
/JP/	1.	JP A 2000-339306 w/abstract & transl.	12/8/2000	JAPAN		
/JP/	2.	JP A 9-76450 w/abstract & transl.	3/25/1997	JAPAN		
/JP/	3.	JP A 2000-207396 w/abstract & transl.	7/28/2000	JAPAN		

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

EXAMINER *James Wilson*	DATE CONSIDERED 2/1/06

Examiner: Initial if citation considered, whether or not citation is in conformance with M.P.E.P. 609; draw line through citation if not in conformance and not considered.   Include copy of this form with next communication to applicant.

Date: June 30, 2003

| Form PTO-1449 | US Dept. of Commerce | ATTY DOCKET NO. | APPLICATION NO. |
| (REV. 8-83) | PATENT & TRADEMARK OFFICE | 116225 | 10/608,567 |

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

APPLICANTS
Hirotaka OHASHI et al.

| FILING DATE | GROUP |
| June 30, 2003 | 2171 |

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS
✓	1	CN 1288192 A w/abstract	03/21/2001	CHINA		
✓	2	JP 2001-051822 A w/abstr & transl	02/23/2001	JAPAN		

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

EXAMINER	DATE CONSIDERED
	8/1/06

Examiner: Initial if citation considered, whether or not citation is in conformance with M.P.E.P. 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Date: August 9, 2005

Notice of References Cited

	Application/Control No.	Applicant(s)/Patent Under Reexamination
Notice of References Cited	10/608,567	OHASHI ET AL.
	Examiner	Art Unit	Page 1 of 1
	James J. Debrow	2176	

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,907,837	05-1999	Ferrel et al.	707/3
*	B	US-2002/0152245	10-2002	McCaskey et al.	707/530
*	C	US-2004/0001087 A1	01-2004	Warmus et al.	345/745
*	D	US-2003/0093382 A1	05-2003	Himeno et al.	705/51
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Burkowski et al.;"Delivery of Electronic News: A Broadband Application", 1994; IBM Press; pp 4
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)　　　　　　　　　　**Notice of References Cited**　　　　　　　　Part of Paper No. 20060201

Delivery of Electronic News: A Broadband Application

F.J. Burkowski[1], Michael A. Shepherd[2], C.R. Watters[3]

Abstract

This paper describes an ongoing research program for the development of an electronic news delivery system that exploits the promised high-bandwidth, switched, interactive communication facilities of the information highway. The research program is in a preliminary stage and will investigate the design and organization of the news sources, client/server architecture, and user interfaces leading to a prototype model electronic news delivery system. Initially based on a newspaper metaphor, the system will exploit communication and multimedia technologies to integrate other news sources, such as newscasts and video clips, with the text backbone. The system will provide selective content delivery based on individual and group profiles, hypertext links into archival and external data, continuous coverage of news stories, interactive objects, and "smart" advertising.

An initial prototype client has been developed using data that include video clips and news and photos from the Halifax newspaper, *The Chronicle-Herald*. An abstract data representation was developed for the integration of layout, syntactic, and semantic information from a variety of sources for the dynamic presentation and manipulation of the news items. This prototype allows us to explore the potential of the medium for supporting user interfaces that cope with a potentially large number of news items in a very restricted screen space and the potential for innovative advertising unlike any advertising we currently experience.

[1]Dr. F.J. Burkowski, Dept. of Computer Science, University of Waterloo

[2]The contact for this paper is Dr. Michael A. Shepherd, Dept. of Mathematics, Statistics & Computing Science, Dalhousie University, Halifax, Nova Scotia, Canada, B3H 3J5. Email: shepherd@cs.dal.ca

[3]Dr. C.R. Watters, Jodrey School of Computer Science, Acadia University

1 Introduction

Advances in communications and multimedia technology are causing newspapers (and other news providers) to reevaluate how they produce and deliver the news [8]. To survive, news providers must become value-added providers of information, able to combine multiple media sources in the personalized delivery of news [1].

The delivery of such electronic news will be over the much-talked-about information superhighways. These networks will incorporate fibre optic pathways with coaxial drops to subscriber households, the whole system providing high-bandwidth two-way digital communication. Examples of recent initiatives towards their realization include Tele-Communications Inc. (TCI) increasing channel capacity from 50 to 500 channels, Time-Warner developing a full-service network in Orlando, Florida, and the field testing of prototype cable modems by Prodigy and Cox Cable and by CompuServe and Continental Cablevision that permit access to on-line services over broadband cable from a home PC [9].

The delivery of electronic news is well suited to such a broadband network in that

1. The wide distribution of such a network is consistent with the mass distribution of news.

2. The switched nature of such a communications network will allow for the customization or personalization of the news format and content.

3. The high bandwidth of such a network is consistent with the multimodal nature of news, which may consist of text, pictures, video clips, live broadcast, etc.

4. The two-way nature of the network opens avenues for interactive and targeted advertising and for interactive items as found in newspapers, such as bridge hands, crossword puzzles, and classified ads.

This paper describes the preliminary work of a research project on the development of an electronic news delivery system [5]. Sections 2 and 3 differentiate between newspaper databases and the delivery of electronic news. Section 4 describes the functionality of the electronic news delivery system

that we are working towards, while Sections 5 and 6 give a brief overview of the system architecture, the use of an abstract data representation, and the prototype client that has been implemented.

2 Newspaper Databases

A distinction must be made between newspaper databases and clipping services, on the one hand, and the delivery of electronic news, on the other.

Newspaper databases with on-line access are essentially document retrieval systems in which individual news stories are treated as discrete units, i.e., stories are treated as documents (for a review see [11-12]). Such systems typically provide two types of services: retrieval of stories (documents) in response to user queries and personalized clipping services (i.e., selective dissemination of information) based on user profiles.

A number of newspapers are available in such a manner, either through their own on-line services or through third-party vendors. A more recent development in this area is the announcement of the Dowvision/WAIS collaboration [10]. WAIS (Wide Area Information Servers) offers Internet access to Dowvision, which includes *The Wall Street Journal*, a variety of other newspapers, and starting next year, *The New York Times*. Using the clients on systems such as WAIS, WWW, and Gopher, the user has full text search access as well as hypertext links to other stories.

IBM's InfoGate is an example of an electronic clipping service [3]; development of InfoGate was started in 1986 in order to keep abreast of technological developments in Japan.   A major project on Broadband Services for the Canadian Institute for Telecommunications Research includes the design of a multimedia news service that will allow clients access to current affairs information based on various attributes, similar to a personal digital clipping service [13].

The newspaper database approach neither provides an interface based on a news metaphor nor does it exploit fully the potential of broadband communication.

3 Electronic News

Key concepts that differentiate the delivery of electronic news from newspaper databases are the concepts of "delivery" of electronic news and a "recognizable news format". Such news will be "delivered" to the home and/or workplace as are today's newspapers and television and radio news. The end user will neither have to log on to a remote system nor perform a search of a newspaper database. Broadband networks will deliver the news, even to wireless PIAs [6].

These news systems will not be clipping services, delivering only articles of interest. They will deliver the news in a recognizable news format, initially a newspaper format with integrated video and sound clips. While there is some concern over the acceptability of the newspaper in electronic versus paper form [12], the electronic form appears to be inevitable.   However, the newspaper metaphor is likely to be only the initial interface as the paradigm continues to evolve [1].

There are a number of projects that have focused on the newspaper metaphor.   Apple Computer, Inc., developed one of the first prototype electronic news systems for the EDUCOM 1990 Conference [7]. It downloaded integrated video, graphics, and text onto the Hypercard platform. However, it did not have the "full" newspaper metaphor, it was not two-way (client/server) interactive, it did not have advertisements, and was not personalized. Walksoft [14] offers a weekly electronic newspaper with the layout templates at the user's PC, thus only text and photos need be sent and layout occurs on the fly. Again, this is not two-way interactive and the content does not appear to be personalized. An on-line version of the *San Jose Mercury News* is available through the Mercury Center project [15]. Although more the "database" approach, an important feature of the Mercury Center project is its provision of links at the end of some stories to additional information.

More ambitious projects are ongoing at a number of places, including Knight-Ridder's Media-Design Lab [4,6], the *Montreal Gazette* [6], and the MIT Media Lab [2]. The Newspace project at the MIT Media Lab addresses many of the same issues that concern us, including personalized editions, integration of multiple media types, maintaining the newspaper metaphor, and a distributed environment. It was developed in the UNIX and X Windows environment using a broadsheet display.

4. Features of Electronic News

Our research is focused on the development of a prototype model electronic news delivery system, including the design and organization of the news sources, client/server architecture, and user

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interfaces. The system will present the newspaper metaphor but exploit broadband communication and multimedia technologies to integrate other news sources, such as newscasts and video clips, with the text backbone.

The information content and functionality of such a system will include

1. Core content: This comprises the stories and advertisements considered important for all readers. It is transmitted to all users and is accepted by all clients for display.

2. Stereotyped content: Group profiles or stereotypes can be generated based on demographic information linking readers to various sections of the newspaper. Readers will be categorized by one or more such stereotypes and will receive various special interest sections, features, advertisements, etc., that meet the constraints of these stereotypes.

3. Supplemental content: While reading the news, a reader may request additional information by invoking a hypertext link or by querying a multimedia archive. Such an archive could be supported directly by the publisher of the newspaper, it could be a private archive held locally by the reader, or it could be a distributed archive on the Internet.

4. Individual profiles: The client subsystem will actively gather and filter information in accordance with an individualized reader profile. Such a profile might include gender, age, interest areas, income level, occupation, ethnic background, lists of products in which the reader has shown an interest, and reading habits such as preferred depth of news analysis. These last profile attributes will be updated dynamically as the client monitors the user's reading activity.

5. Advertisements: The system will feature customized, interactive advertisements that catch the attention of and involve the reader. These advertisements could gather information about the reader so that products and product advertising can be customized and targeted. This supports the trend to maintain marketing databases that keep track of customer related information.

6. Multiple server access: The client should have simultaneous access to multiple news servers and should be able to thread the various strands together into a coherent presentation based on individual preferences and group profiles.

7. Continuous coverage: The system should augment print-oriented news with real time access to news stories with continuous coverage. This could include a stock market ticker tape banner running across the bottom of the screen, a window

reporting the latest sports scores of the user's favourite teams, or late breaking news stories.

8. Interoperability: The proposed system should be able to operate in conjunction with other systems or software. For example, on-line stock market reports could be downloaded to spreadsheets for further analysis.

9. Interactive: In addition to advertisements, there should be sections of the paper that are interactive, such as editorials, classified ads, bridge hands, and crossword puzzles.

5. Proposed Architecture

The proposed architecture consists of three layers, in a distributed client/server environment; the news sources layer, the news packagers layer, and the readers layer.

The news sources layer consists of news producers that generate the news items and supply them in some agreed upon markup format.

The news packagers layer consists of client/servers that accept items from the news sources and produce electronic editions of "the news", including advertisements, etc., based on stereotypes.

The readers layer consists of the end-user client/servers. These accept editions of the news and produce the individual editions of "the news". This includes, dynamic layout and assembly and requesting supplemental material based on the profile or end-user actions.

Current work, not discussed in this paper, is focussing on the details of such an architecture, scalability, and networking.

6. Prototype Client

Our initial goal was to examine the protocols and data structures necessary to support the dynamic generation of a personalized client news edition. A prototype client was implemented using MultiMedia Toolbook software on a PC platform. This implementation included dynamic assembly of news pages with content selection defined by a reader stereotype. The news was the February 22, 1994, edition of the Halifax newspaper, *The Chronicle-Herald,* and news video clips. The source data from the newspaper was supplied as ASCII text augmented with scanned photographs and layout information. The news video clips were captured by video recorder.

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6.1 Layout of Prototype

An abstract data representation was defined and applied to the source data. Using an abstract representation divorces the display and manipulation of the news items from the original format of the source. A reader stereotype was defined for the prototype, as per demographic data supplied by *The Chronicle-Herald*. The client selected data from the abstract representation and processed and formatted it to produce the news display for the reader, based on the stereotype. The client has control over the display and order of items in the sections and the order of access to sections, but in this case, not over content of the sections or the order of the news items in the sections.

The layout is very much the "electronic newspaper" metaphor with several stories displaying on each page with room for advertisements, news capsules, and photos. Some variations on the printed layout are necessary to counteract the effect of the small display area. In the prototype, indices and space overloading were used as sample techniques to maintain the newspaper metaphor functionality in the reduced space of the computer screen.

News indices for the entire "edition" are generated by the client and can be seen in Figure 1a. The scrollable news-item index is generated for each section of the news in standard categories and would be the same for all users of the same edition. The button index below the scrollable index is personalized for the particular reader according to sections most frequently read and according to some preferred order. In addition to the overall indices, each section has an index, shown in the upper left of Figure 2, which gives easy reference to all items in the current section. The sectional indices give back some of the browsing and scanning functions inherent in the larger paper space.

6.2 Screen Sharing

The net effect of aiming at a newspaper format in the restricted space of the computer screen is that multiple items can be presented only if each is considerably reduced. The annoying fragmentation of longer stories common in printed newspapers is consequently compounded. Traditional newspapers make extensive use of continuation to reduce the amount of page space used by each news item. This permits more items to be introduced on a single page and more ads to appear on the page. Three different ways of dealing with this problem on the computer are the use of a **more** button to move to another page with additional text, scrollable windows (as are all of the windows in the prototype), and "exploding" windows. Figures 1a and 1b show an example in which the reader has clicked on the lead story and the page is overwritten with the full text of the story. A subsequent click will reduce the story to its original form.

Capsule items common to most newspapers are present in the prototype as headings. As seen in Figure 3a, the reader can expand any such headline to read the full capsule.

The display of photos and videos, when available, is also problematic. These items can either always be shown or be shown only upon reader request. Unfortunately both videos and photos take up a considerable amount of screen area. In the prototype, photos (except on the front page) and videos are available on demand. Figure 3b shows the display of a photo. Notice that the layout placement of the photo must not cover the related story.

6.3 Advertisements

Advertising revenues currently account for approximately 80% of a newspaper's revenues and make up 40%-60% of the newspaper. Given the size restrictions of a computer screen, more imagination must be used in the design and presentation of ads.

To sample this area we have included ads that are buttons, ads that are timed, and ads that are activated whenever a mouse passes over that part of the screen. These include

1. <u>Background Ads</u>: On the front page (Figure 1a) the "ABC Imports" ad is actually part of the background so that it is presented briefly each time the user returns to the front page even if the user has moved another item on top of this ad.

2. <u>Icon Ads</u>: Most of the ads used in the prototype use an "open up" allocation of space. This means that initially they are represented by an icon or small ad that takes up little space but if the mouse comes within a certain distance of the ad object then it opens up into a full-sized, full-colour ad (Figure 4). Subsequent removal of the mouse or time-out are used to return the ad to its iconic form.

3. <u>Strip Ads</u>: One or more ads can share a small strip of screen that has one or more active "slots" so that when the mouse passes over the

"slot" a larger ad appears.

4. Animation: The car advertisement shown on the front page, Figure 1a, is a simple animation. When a user clicks on the ad the car moves from the distance to the position shown in the figure.

An extremely important feature of such a system will be the two-way communications available. Ads will be able to track who views them, how often, and for how long, and will be able to report this information to the advertiser.

7. Summary

In summary, we feel that the delivery of electronic news is well suited to exploit the promised high bandwidth, switched, interactive communication facilities of the information highway. The presentation of such news will be based initially on a newspaper metaphor and will exploit communication and multimedia technologies to integrate other news sources, such as newscasts and video clips, with the text backbone. The system will provide selective content delivery based on individual and group profiles, hypertext links into archival and external data, continuous coverage of news stories, interactive objects, and "smart" advertising.

There are many open questions, including client/server architectures, abstract data representations, human-computer interaction problems caused by the small screen areas, and versioning of news editions with continuous coverage by real-time news casts.

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